humanity alone; and we sincerely hope that the Sanitary Commission may add one more claim to the gratitude of the country by presenting us with an American edition, with such notes and comments as the vast home experience and study of the past four years may suggest. Such a combination could not fail to prove as welcome a gift in return to the able author, and his still more distinguished monitress, as his and her works have been to us.

E. H.

ART. XIX.—*Lectures on the Diseases of the Stomach, with an Introduction on its Anatomy and Physiology.* By WILLIAM BRINTON, M. D., F. R. S., Physician of St. Thomas's Hospital. Second Edition. 8vo. pp. 368. London, 1864.

THE diseases of the stomach are among the most frequent for which the physician is called upon to prescribe, while they are among the most obscure in their symptomatology and difficult in their diagnosis. Consequently no class of diseases, probably, has been heretofore to a greater extent mismanaged. A very cursory examination of the treatment laid down as that proper in gastric affections generally, by our leading medical authorities of even a recent date, will show how much it partakes of empiricism, to how little an extent, at least, it is founded upon correct views of the physiology of the stomach, or of the nature of its several pathological conditions; how little it is sanctioned by the general results of clinical observation. Every attempt, therefore, made in the right direction, to remove, even in part, the obscurity and uncertainty in which the etiology, symptomatology, and pathology generally, of the diseases of the stomach have been involved, and to render more clear and positive their remedial and hygienic treatment, claims our most earnest attention.

Such an attempt has been made by Dr. Brinton in the lectures before us; and we think that he has to a very great extent succeeded in its accomplishment. He has availed himself of whatever facts bearing upon the subject are to be found in the records of the medical experience of different epochs and countries; these he has carefully compared with each other and with his own observations made during twelve years as a dispensary and hospital physician, in order to test, as far as possible, their accuracy and true bearing.

The results of his investigations and personal experience were embodied by Dr. Brinton in a course of lectures delivered by him to a class composed of the more advanced students of St. Thomas's Hospital, London. These lectures, with many additions and amendments, are those embraced in the volume before us. Among the additions is an introductory section presenting a summary of the anatomy of the stomach, and of all that is at present known in respect to its physiology. We would call particular attention to this portion of the work as one of peculiar excellence and accuracy.

The first of the eight lectures of which the volume is composed is devoted to a general consideration of the leading symptoms of stomachic disease—pain, eructation, regurgitation, vomiting, hemorrhage, and flatulence. The characteristics of each of these symptoms, together with its greater or less prominence under particular circumstances, its significance, its value as a pathognomonic sign, and its mode of production, are carefully examined.

The author's commentary upon them respectively is particularly clear and instructive.

Some degree of pain is a common symptom of gastric disease. In numerous cases although originating in the stomach it is referred to distant parts, but in the large proportion of cases, the pain is referred to the stomach itself, and located with sufficient accuracy to render its precise position a matter deserving of notice. It is scarcely possible, however, for the patient to indicate in any case the depth to which his sensation of pain is to be referred.

A very potent cause of deception in the case of pain ascribed by the patient to the epigastrium, is the fact that this spot is "a kind of focus, formed by the convergence and attachment of a number of important organs, and hence liable to be occupied by the pain which the lesion of any one of them can produce."

"Pericarditis, pleurisy, gallstones, hepatic abscess, diaphragmatic lesions, emphysema of the lungs, and a variety of intestinal causes (among which Dr. B. has himself verified an obstruction of the small intestine occupying the right iliac fossa), any one of these can produce what is, strictly speaking, pain in the epigastrium, and therefore so far simulative of gastric pain. And though it is probable that the contrast of the latter with any one of the former would show a considerable difference—so much so that few persons unfortunate enough to have experienced the two would be incapable of distinguishing them—yet ordinary language affords little means of expressing the difference thus felt, to say nothing of the rarity of an opportunity for such a direct comparison."

As a general rule, pain in gastric disease is a grave symptom in proportion as well to its severity as to its concentration and fixedness. That is to say, a severe and continuous pain, confined to one spot of small extent, is a more serious indication than a pain at times of equal or nearly equal severity, which fluctuates in its different attacks, ranging the epigastrium of which it always occupies a wide area. Pain is graver, and more certainly gastric, in or near the median line. Dr. Brinton believes that a pain thus located always indicates a more serious derangement of the innervation of the stomach than when it has a less exact correspondence with the solar plexus. The location of the most serious form of gastric pain is on the dorsal median line ranging from between the scapula to the lumbar region (*rachialgia*). It is usually an addition and complication to a previous gastric pain. It is rarely associated with any but the severest forms of dyspepsia, and belongs chiefly to deep ulceration, or cancerous lesions of the stomach, involving all its coats.

Severe or continuous pain of the stomach is most commonly associated with more or less soreness or tenderness upon pressure. When the pain, however, occurs suddenly and is temporary and attended with much flatulence it is often relieved by gentle pressure. According as the tenderness upon pressure is moderate or excessive, superficial or deep-seated, localized or diffused, will it confirm our judgment as to the nature and seat of the gastric malady—distinguishing general inflammation from ulceration or dyspepsia, or a lesion of the peritoneal from one of the mucous coat.

Some interesting remarks are presented on the physiology of eructation, regurgitation, and vomiting. All three of these acts, whatever their differences of detail, agree in requiring for their occurrence an open cardia, a closed pylorus, and a compressed stomach—the compression resulting either from its own muscular contractions or from extrinsic force.

In alluding to *vomiting* as a symptom of gastric disease, Dr. B. remarks that it is sometimes the case that the vital powers become rapidly exhausted

by violent and frequent vomiting, to arrest which all our efforts fail, while we are entirely uncertain as to the cause of the vomiting during the life of the patient, and are unable to derive any light upon the subject by a necropsy, there being no apparent lesion of the stomach after death, or even, it is said, of any other organ. Hence it is not possible to augur the gastric origin of vomiting from its mere severity and frequency, nor must we expect to decide this from any single peculiarity of the symptom—such as its excitement by food, its association with epigastric pain, or even its expelling blood.

"One general rule respecting it may, however, be laid down. While it is to the aggregate of symptoms that we have to look for our diagnosis of the cause of vomiting in any given case, it may," Dr. B. thinks, "be propounded that the facility with which an irritation produces vomiting varies, other things being equal, with the closeness of alliance between the stomach and the irritated part. For example, vomiting is excited more frequently and readily by an irritation of the duodenum or pharynx, than by an irritation of the jejunum or mouth respectively; and, again, by irritation of the small intestines rather than of the large; of the mucous rather than of the peritoneal coat, throughout the whole canal; of the brain rather than of the integuments. Conversely, as may be noticed in pleurisy, pericarditis, aneurisms, and various endocardial lesions, vomiting is a grave symptom in many thoracic diseases, because, still *cæteris paribus* only, it implies a more serious mischief than would suffice to produce it in lesions of the abdominal cavity."

Dr. B. believes that, in the present state of our knowledge, we are permitted to suppose that whatever the kind of cerebral disturbance necessary for the production of vomiting, a certain degree of irritation of afferent branches of the sympathetic system will generally suffice to excite it, and with a facility apparently proportioned in great measure to the closeness with which these branches are related to that great pre-vertebral centre of the abdominal sympathetic, formed by the semilunar ganglia and the solar plexus.

"Among the vomitings produced by gastric derangements, we may distinguish the following varieties. First, the vomiting brought about by sheer destruction of tissue, involving an abnormal irritation of the nerves laid bare at the seat of lesion; a variety exemplified in simple and malignant ulceration, in wounds of the stomach, in corrosive poisoning, and characterized, as might be expected, by a remarkable amenability to the physical or chemical properties of substances brought into contact with the injured nerves—as in the ingestion of food. Second, the vomiting of obstruction, which is referable, not so much to the mere obstruction, as to the distension and violent muscular movement which is gradually brought about behind the occluded part, and which varies, therefore, not only with the strictness of the occlusion, but with its proximity to the pylorus, its superficial extent, its disposition relatively to the muscular coat, and other circumstances of this kind. This variety of vomiting is often seen in cancer, and, a still better example, in cicatrized ulcer of the stomach. Third, a kind of vomiting in which the gastric distension present appears mainly referable to a loss of contractile power by the muscular coat of the stomach—the structure of the organ remaining unchanged—and in which we must often doubt whether this failure of contractility is not caused by some nervous lesion, itself answerable for the vomiting—whether, in short, the distension of the stomach is simply concurrent, or really causative in this process."

Hemorrhage is an occasional attendant upon the diseases of the stomach. It may be present and yet no blood detected in the matters vomited. Blood effused in the stomach may be passed off entirely in the feces. Taking this in connection with the fact that it is very rarely vomited so completely and instantaneously as to prevent any portion from passing into the intestine,

it must be obvious that the discharge of blood by stool is by far the most frequent symptom of gastric hemorrhage. A mere hemorrhage into the intestines by no means, however, proves that the stomach is the seat of the effusion or any lesion of it its cause. Any injury which can produce a hemorrhage into either of the cavities which communicate with the digestive tube, may indirectly give rise to the influx of blood into the stomach and bowels, and, consequently, to its expulsion thence. Nor is actual gastric hemorrhage always dependent upon disease, properly speaking, of the stomach. Any mechanical obstruction of the portal system—as cirrhosis of the liver, tumours or deposits in the course of the portal vein—may cause so great a distension of the vessels in the walls of the stomach and intestines from which it originates, as finally to cause more or less of their contents to extravasate, giving rise to a vomiting or discharge per anum of blood, which is really unconnected with any actual disease of the stomach, however it may embarrass or even suspend its functions.

Hemorrhage of the stomach often takes place under circumstances which imply little danger to life, sometimes even little derangement of health. It may be frequent and yet very small in amount, and it may be recovered from, without leaving any lesion from which the most careful necropsy can determine its site.

However suspicious a circumstance is the appearance of a small quantity of blood in the matters ejected from the stomach, it is only by its careful collation with other symptoms that it can influence materially the diagnosis. It proves a solution of continuity in the vessels yielding it, but does not determine the situation of the ruptured vessels, nor whether their rupture is due to vascular obstruction, to congestion, to desquamation, or to ulceration.

More copious gastric hemorrhage is a graver symptom and one of more definite import. It sometimes indicates very clearly by the appearance of the blood discharged its arterial or venous origin. By the clots it often contains we infer that it must have been effused rapidly, from one or two large, or from numerous small vessels. When of a very dark colour and tarry consistence, it proves that it has been exposed for some time to the action of the digestive juices, and, also, that it has either been slowly effused, or is of but moderate amount.

"In blood discharged from the stomach by the bowels, of course no such rule will obtain, indeed such a hemorrhage will rarely fail to exhibit somewhat of this tarry colour and consistence, unless its quantity has been excessive, or its transit through the intestinal canal unusually rapid. The detection of hemorrhage is sometimes rendered difficult by the admixture of blood with other substances of similar appearance, especially with various articles of food, and with more or less altered bile, occasionally even with morbid products. A careful examination will, however, generally clear up any obscurity of this kind. Indeed a mere dilution of the inspected matter with water usually suffices; or, if not, a microscopic examination rarely fails to decide the question."

Flatulence is among the most common of the symptoms connected with stomachic disease. We are to recollect, to use the language of Dr. B.,

"That the stomach and intestines generally contain a certain amount of aeriform fluids, derived, in great part, from the decomposition of ingesta. That it is only when they are excessive and troublesome that their presence is strictly abnormal. And that, among the causes of such an abnormal amount of these gases—in one word of flatulence—the most intimate and obvious are (1st) a quantity of food which is too large, either absolutely or relatively to the digestive juices of the individual; and (2d), a quality of food which—either from exist-

ing or nascent putrefaction, or from a peculiar proneness to it, or even from a peculiar composition, favours this change."

There are, however, as Dr. B. justly remarks, various abnormal states of the digestive canal in which flatulence occurs under circumstances inexplicable by the above laws. Occasionally the symptom appears and disappears with such rapidity, apparently so entirely independent of every other abnormal condition, that it is no wonder the supposition of a secretion of gas by the stomach should be considered necessary to an explanation of the phenomenon.

A person breaks a fast of some hours with a morsel of food which he habitually digests with difficulty. He is instantly seized with acute pain of the epigastrium, which in a short period as suddenly disappears after a copious eructation of flatus. In explanation of this fact Dr. B. remarks that, within certain limits, dictated chiefly by the general pressure of the atmosphere, the intestinal gases are exposed to two kinds of compression, which not merely affect the bulk occupied by a given amount of flatus, but concur, probably, often with a slower alteration in the quantity developed in the digestive canal.

It is by the pressure, therefore, of the abdominal muscles on the alimentary canal, and that of the muscular coat of the latter on its contents, that to a great extent is regulated the bulk of the aeriform fluids by which the digestive canal is so largely occupied. It is, according to Dr. B., chiefly to a sudden decrease of pressure that the apparently sudden development of gas in the stomach and bowels is to be referred; and this decrease of pressure he attributes mainly to muscular relaxation in answer to a stimulus.

It is well known that when the peritoneal coat is irritated in the intestine of a living animal, a local relaxation is induced, causing a kind of bulging of the walls of the bowel occupied by gas. From a variety of morbid conditions of the alimentary canal, it is shown that such relaxation is connected rather with irritation of the peritoneal than of the mucous coat; of the trunks rather than of the periphery of nerves, while its degree and extent vary (*cæteris paribus*) with that of the irritation. Thus, in its more characteristic forms, as in severe peritonitis, for example, it engages not only the muscular wall of the intestine, but also those muscles of the abdomen co-ordinate with those of the intestines, giving rise then to that general gaseous distension of the abdomen observed in certain forms of tympanitis. Dr. B. would, therefore, explain the sudden attack of flatulent colic already referred to, not by a sudden secretion of gas, but by supposing—

"That the irritation of the morsel of unwholesome food caused a relaxation of the gastric coats, that the pylorus—generally patulous to the non-alimentary contents of the duodenum, and specially so in virtue now of its relaxation, allowed the rarefied gases of the stomach to be increased by an addition from the duodenum, and that the resulting eructation expelled a fraction of the total gaseous mass. That under these circumstances, expulsive contraction should follow relaxation is not surprising; in the normal rhythmic peristalsis of the muscular wall of this canal, these two states have exactly the same sequence, both in time and place.

"Without going so far as to assert that distension does not often materially add to the pain of a flatulent attack, we are at least fully entitled to conclude," says Dr. B., "that, far from pain being always preceded and caused by flatulence—in this chain of abnormal phenomena, pain, relaxation, and contraction or expulsion are generally three successive links; and that not only may the first occur without always or necessarily calling forth the second and third, but that it is essentially the exponent of an irritation itself the cause of all three."

The second lecture is on the morbid appearances discovered after death in the stomachs of those who, during life, had exhibited symptoms of gastric disease. It is full of instruction. The true character of the several abnormal conditions of the stomach observed in necropsy is clearly described, their significance carefully examined, and their relative importance most ably indicated. The latter half of this same lecture is devoted to a consideration of the pathology and treatment of gastritis, and to a notice of catarrh of the stomach, hemorrhagic erosion, and follicular erosion, three affections which, in respect of their nature, symptoms, and appearances after death, must, Dr. B. thinks, be regarded rather as varieties of subacute gastritis than as specific or independent diseases. It would extend our notice of the work to an unreasonable length were we to enter upon an analysis of the lecture. No mere outline of it would do entire justice to the author or be very edifying to our readers.

The third lecture is on ulcer of the stomach. This condition of disease is among the most important and interesting of those to which the stomach is liable, whether we consider its frequency, its usually protracted course, the suddenness with which it may, at any stage, prove fatal, notwithstanding that it is usually curable. It is important, also, from the fact that in practice it will often be found that the diagnosis of cancer, dyspepsia, or chronic inflammation requires a process of induction which generally amounts to, and sometimes specifically includes, a reviewal of the phenomena of ulcer of the stomach before rejecting this as the explanation of the symptoms present. The disease becomes of still greater interest under the view entertained of it by Dr. B., that it is the result of a specific structural lesion, as can, he thinks, be at once detected by an examination after death.

The entire subject of ulcer of the stomach is treated by Dr. B. with great ability. His history of symptoms is derived almost exclusively from the records of about 1200 cases, affording often only a mere outline of the chief symptoms, but always verified by careful necropsy, together with the personal study of more than 200 cases, affording minute details respecting symptoms, but only verified by necropsy in a small proportion of them.

A very instructive lecture follows on cancer of the stomach. The author offers some new details bearing on the diagnosis and treatment of the disease, and claims for his description an accuracy scarcely hitherto attainable.

The foregoing lectures (3d and 4th) occupy alone nearly one-half of the volume, a space fully warranted by the importance of the maladies of which they treat.

Lecture 5th treats of cirrhotic inflammation, or, as Dr. B. styles it, *plastic linitis*, of the stomach, suppurative linitis, tumours, hypertrophy, atrophy, dilatation from obstruction, destruction, injury, or paralysis, and secondary inflammation. These affections, Dr. B. believes, even the rarest of them, are not the mere extremes or modifications of a variety of diseases, but constitute types and classes for themselves. They are not only obscure considered in themselves, and, consequently, little likely to reveal themselves to the casual or one-sided glimpses which their infrequency has caused to be bestowed upon them, but they are still more obscured by the names and descriptions they have hitherto received. The account given of them by Dr. B. is particularly clear and instructive, and, as he assures us, is founded on careful clinical and pathological observations conducted by himself.

A most admirable view of "dyspepsia" is given in Lecture 6. Dr. B. sets out with the inquiry as to what is meant by the term dyspepsia.

There is no doubt that in popular acceptation the term dyspepsia is applied to a disturbance or difficulty of digestion, unexplained by structural lesion; even taken in this restricted sense the question naturally suggests itself, "How far is dyspepsia a *gastric disease?*"

"It may be quite true," says Dr. B., "that in some cases the stomach is only distressed by the excessive amount of food introduced into it, and is only injured by being overtasked, much as a muscle or a tendon might be. It may be equally true that, in others, it is weakened by want of exercise, or deranged by a surplus of the materials amenable to other parts of the digestive process; that it languishes for want of the protein compounds it ought to elaborate; or is surcharged by starchy or fatty matter foreign to its office—perhaps often in excess of what can be assimilated by the organs whose function it is to do so. Still, since, in a vast majority of cases, the symptoms of dyspepsia are referable mainly to the stomach—since the organ is either primarily or secondarily deranged, and the symptoms of that derangement are the chief phenomena observed by the physician and felt by the patient—we may safely accept the ordinary view that dyspepsia generally represents a functional malady of the stomach. Doubtless there are many derangements of other parts of the alimentary canal equally entitled to the name of indigestion. But with the exception of intestinal dyspepsias attended by diarrhœa—and often accompanied by such a catarrhal state of the large intestine as amounts to a structural lesion—the symptoms strictly intestinal are generally scanty and obscure in comparison with those traceable to the stomach. And hence these latter may justifiably be the chief objects of our study. Even were they mere incidents of the malady, so long as we remembered that they were not its essential or sole features, but only those most accessible to our scrutiny, we should be entitled to accord them a notice proportionate with their importance. But when we find, as we do, that the stomach not only always shares, and sometimes almost monopolizes, the derangements called dyspepsia, but that it is also more amenable to treatment than any other part of the digestive canal, we are justified in describing dyspepsia as being, for practical purposes, a gastric disease."

Athough Dr. B. disclaims any attempt at a full account of dyspepsia, and professes only to submit, for the consideration of his readers, some suggestions intended to aid in the rational study of the malady, with the view to the settlement of the true principles of its pathology and treatment, yet the entire lecture on dyspepsia presents a closer and better account of indigestion than can be met with elsewhere. Instead of the loose manner in which the term dyspepsia has been too often employed, to designate almost all diseases of which chronic disturbance of the digestive function constitutes a prominent symptom, Dr. B. has endeavoured to restrict the term to a disturbed or difficult state of digestion without any structural lesion of the stomach or any prominent primary affection, whether acute or chronic, of the system at large, or of the heart, the lungs, the brain, etc. With this acceptation of the term dyspepsia, he has described, with great accuracy, though in brief outline, the phenomena by which it is indicated in the several forms under which the disease is met with, and the treatment—chiefly hygienic—by which it is to be most successfully combated.

Of the correctness of the manner in which the subject of dyspepsia is discussed in the lecture before us and of the justness of the conclusions to which Dr. B. has arrived in reference to it there can scarcely be a doubt. His views in relation to its pathology are unquestionably those alone upon which any successful plan for its prevention or cure can be based—without the necessity of taking into account, at the same time, sundry maladies of the human organism, general or local, of which suspended, impeded, or disturbed digestion forms almost always a prominent symptom.

We believe that from a careful study of the lecture all will rise with instruction—with clearer, more definite, and practical views of a malady "the minor degrees of which are so common, that few persons in civilized life altogether escape them;" one which, although, even in its more aggravated forms, is in a great measure without very serious results, nevertheless inflicts upon those who are its subjects an amount of suffering and discomfort from which they would fain be relieved.

The subjects of the remaining two lectures are, respectively, gastric phthisis and gout of the stomach. Both these affections are treated by Dr. B. with the same judgment, care, and clearness he has exhibited in reference to those which constitute the subjects of the lectures that precede. The symptoms appertaining to each are carefully analyzed, and their true bearing fully discussed; the relationship of the lesions to which they respectively appertain to those present in the other diseases of the stomach are inquired into, with the view of determining the true character of these affections, whether they are to be ranked as independent maladies, or are simply modifications of one or other of those previously described, in consequence of their occurrence in patients affected with, or strongly predisposed to, tuberculosis or gout.

The entire series of lectures embraced in the volume before us are well worthy of a close study on the part of every one desirous of acquiring correct views in relation to the nature and treatment of the diseases of the stomach. Nowhere can be found a more full, accurate, plain, and instructive history of these diseases, or more rational views respecting their pathology and therapeutics. D. F. C.